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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
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EXAMINER

YAM, STEPHEN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 02 14 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,373

Applicant(s)

ALBATS ET AL

Examiner

Stephen Yam

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 5 6) ☐ Other.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

1. Claims 11-20 are objected to because of the following informalities:
"Said first sensor" and "said second sensor" lack proper antecedent basis.
Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 8, 10, 12, 14, 15, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Das et al. US Patent No. 6,333,631.

Regarding Claim 1, Das et al. teach (see Fig. 1) a movable sensor apparatus (7) comprising a movable housing (6), at least one supporting extension (2,25) wherein each supporting extension is rotatably affixed (see Fig. 4) to said housing about a first (Z) axis, at least one sensor (3,4,5) rotatably affixed (see Fig. 4) to one of said at least one supporting extension

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about a second (Z_3, Z_5) axis different from said first axis, a triggering unit (see Col. 2, lines 39-46) electrically coupled to each of said at least first sensor and capable of separately activating each of said at least one sensor, and a sampling unit (see Col. 2, lines 43-46) electrically coupled to each of said sensor and capable of receiving output from each of said at least one sensor.

Since Das et al. teach the housing as wheeled and traversing the ground (see Col. 3, lines 43-45), inherently a linear propulsion mechanism is included to move the vehicle relative to the ground by rotation of the wheels.

Regarding Claim 10, Das et al. teach a movable sensor apparatus comprising a movable housing (6), a first supporting extension (2) rotatably affixed (see Fig. 4) to said housing about a first (Z) axis, a second supporting extension (25) rotatably affixed (see Fig. 4) to said housing about said first (Z) axis, a first sensor (3) rotatably affixed (see Fig. 4) to said first supporting extension about a second (Z_3) axis different from said first axis, a second sensor (4, 5) rotatably affixed (see Fig. 4) to said second supporting extension about a third (Z_5) axis different from said first and second axes, a triggering unit (see Col. 2, lines 39-46) electrically coupled to said first and second sensor and capable of separately activating said first and second sensor, and a sampling unit (see Col. 2, lines 43-46) electrically coupled to said first and second sensor and capable of receiving output from said first and second sensor. Since Das et al. teach the housing as wheeled and traversing the ground (see Col. 3, lines 43-45), inherently a linear propulsion mechanism is included to move the vehicle relative to the ground by rotation of the wheels.

Regarding Claim 2, Das et al. teach the sensor (3) as a magnetometer (see Col. 4, lines 26-37)

Regarding Claim 3, Das et al. teach the sensor (4) as an optical camera, as the sensor contains an optical position encoder (which inherently comprises a camera to detect position from the optical signal emitted from the laser source) (see Col. 7, lines 45-54).

Regarding Claim 4, Das et al. teach the sensor (3) as a metal detector (see Col. 4, lines 26-30)- inherently, a metal detector is an electromagnetic induction sensor.

Regarding Claim 5, Das et al. teach the sensor (5) as a sonar sensor (see Col. 4, lines 50-59).

Regarding Claim 6, Das et al. teach the supporting extension as rotating at a constant rate of rotation (see Col. 6, lines 59-61 and Col. 7, lines 49-51).

Regarding Claim 8, Das et al. teach (see Fig. 1) a position indicator (4, 5) coupled to the supporting extension (see Col. 5, lines 47-50).

Regarding Claim 12, Das et al. teach a first sensor (3) as a radar sensor (see Col. 4, lines 26-37) and a second sensor (4) as an optical camera (see Col. 7, lines 45-54).

Regarding Claim 14, Das et al. teach a first sensor (3) as a radar sensor (see Col. 4, lines 26-37) and a second sensor (5) as a sonar sensor.

Regarding Claim 15, Das et al. teach a first sensor (3) as a magnetometer (see Col. 4, lines 26-37) and a second sensor (4) as an optical camera (see Col. 7, lines 45-54).

Regarding Claim 17, Das et al. teach a first sensor (3) as a magnetometer (see Col. 4, lines 26-37) and a second sensor (5) as a sonar sensor.

Regarding Claim 18, if the references to a first and second supporting extension and sensor are reversed ("first"->"second" and "second"->"first"), Das et al. teach a first sensor (4) as

an optical camera (see Col. 7, lines 45-54) and a second sensor (3) as an electromagnetic induction sensor (see Col. 4, lines 26-37).

Regarding Claim 19, Das et al. teach a first sensor (4) as an optical camera and a second sensor (5) as a sonar sensor.

Regarding Claim 20, Das et al. teach a first sensor (3) as an electromagnetic induction sensor (see Col. 4, lines 26-37) and a second sensor as a sonar sensor (5).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 9, 11, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Das et al.

Regarding Claim 7, Das et al. teach the apparatus as taught in Claim 6, according to the appropriate paragraph above. Das et al. do not teach each sensor rotating at a constant rate of rotation equal in magnitude to the rate of rotation of the supporting extension. It is well known to pan sensors in a certain direction to capture surrounding information and to use identical motors in a device to simplify its production and lower repair costs. It would have been obvious to one of ordinary skill in the art at the time the invention was made to rotate each sensor in an opposite direction at an equal rate of rotation in the apparatus of Das et al., to provide a low-cost

method of obtaining accurate distance data in all directions, to more accurately determine the location of the apparatus.

Regarding Claim 9, Das et al. teach the apparatus as taught in Claim 6, according to the appropriate paragraph above. Das et al. also teach a computer system (see Col. 3, lines 46-49) attached to the apparatus. Das et al. do not teach a data storage device for storing sensor data collected the sensor and position data collected from the position indicator. It is well known to capture sensor and positional data, to map a large terrain containing hazardous objects. It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the sensor and positional data in the apparatus of Das et al., to provide determine the precise location of mines to map an area for hazardous objects.

Regarding Claims 11, 13, and 16, Das et al. teach the method as taught in Claim 6, according to the appropriate paragraph above. Das et al. do not teach two different sensors chosen from the list of a magnetometer, radar sensor, or electromagnetic induction sensor. It is well known to use two separate sensors in a sensor apparatus, to improve detection accuracy and reduce false readings. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use at least two different sensors chosen from the list of a magnetometer, radar sensor, or electromagnetic induction sensor, to further improve the detection of mines and other metallic objects as desired by Das et al.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Lemelson, US Patent No. 4,636,137, teaches a movable sensor apparatus with at least one supporting extension rotating about a first axis and at least one sensor on that extension rotating about a second axis.

Stone et al. US Patent No. 5,443,354, teach a movable sensor apparatus with at least one supporting extension rotating about a first axis and at least one sensor on that extension rotating about a second axis.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

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February 7, 2003


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